Sujit Mohite

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EDUCATION

College of Engineering, Pune, India August 2014 – May 2018

Bachelor of Technology, Electrical Engineering, CGPA: **7.64/10**

- **Coursework:** Microcontrollers, Industrial Control System, Information Systems, Numerical Methods, Object-Oriented Programming, Data Structures, Algebra, Vector Calculus, Electrical Machines, Electric Drives, Power Electronics, Signals and Systems, Basic Automobile Engineering, Professional Ethics, Intellectual Property Rights.

SKILLS

Programming Languages: C, C++, Python, SQL, C#, Bash, HTML, CSS

Frameworks/Libraries: TensorFlow, PyTorch, OpenCV, Numpy, Pandas, PySpark, Matplotlib, MLFlow, Simpy

Version Control: Git, Subversion

Platforms and OS: Windows, Linux, ROS, Raspberry Pi, Arduino, STM32

Softwares: Blender, KiCad, Altium Designer, Issac Sim, TIA Portal, WinCC, VSCode, Pycharm, Unity.

PROFESSIONAL EXPERIENCE

Tetra Pak India Pvt. Ltd. July 2018 – Present

Automation Engineer:

- Effectively leading Innovation initiative to establish an Innovation culture in the factory.
- Responsible for developing Digitalization Solutions to improve Human Safety, Product Quality and Machine Efficiency.
- Introduced AI-based solution to the factory by deploying Machine Vision Quality Inspection systems in 3 areas eliminating customer-reported issues.
- Major contribution in the development of digital use cases for global rollout in 30 Tetra Pak factories.
- Delivered end-to-end solutions by working with different stakeholders at different levels of organization.

INDUSTRIAL PROJECTS

Factory Simulation (Global Digitalization Project)

- Simulating all processes in the factory to empower management in decision making regarding new machine installation for Lean Manufacturing and capacity planning.
- Support order planning by simulating planned orders in all processes to identify bottleneck machines on the production line.
- Modeled all machines in a process using Discrete Event Simulation (DES) to simulate a process considering all events in that process by using 5 years of historical order data from production management system and time series machine data from data acquisition system.
- Developed data extraction and data harmonization tools to model processes and test simulation in real-time.

Automation Platform (Global Automation Project)

- Development of automation standards and guidelines for all machines for consistency and modularity across all machines in all factories.
- Refactoring code for one machine in 3 operating modes and 17 operating states in TIA portal.
- Established standards for data extraction from machines considering OT security and communication standards within a machine.

Unmelt Lump Detection in Straw (Computer Vision)

- Developed and deployed 7 vision systems in 3 weeks capable of inspecting 11M straws per day, which helped to start straw production, minimizing the impact of the single-use plastic ban on business.
- Designed vision system to detect unmelted lump defects inside opaque straw with telecentric backlight illumination, which can create contrastive spot at the defect.

Reel Inspection System at Conveyor (Computer Vision)

- Designed and developed a reel inspection system to detect defective reels using ResNet50 to secure quality.
- Developed a unique python script in Blender to generate synthetic defect data for training ResNet50.
- Designed enclosure and optimized software to reduce the variability introduced due to external factors.

Optical Character Recognition OCR for printing plates (Computer Vision)

- Developed customized OCR tool for verification of unique design numbers engraved on transparent plates with production data using object detection model to eliminate customer complaints of wrong printing.
- Integrated system with production system for fetching production data and developed intuitive UI.
- Used transfer learning and postprocessing of text for accuracy and speed improvements.

ACADEMIC PROJECTS AND ACHIEVMENTS

International ABU Robocon 2017 (Representation at International level)

- Represented India in the International Robocon competition 2017, Tokyo, Japan. Won Nagase award and 6th rank amongst 19 nations.
- Winner among 112 teams at National Robocon 2017, India. Won Fastest Robot and Best Idea Award.
- Developed state machine algorithm for frisbee throwing robot by utilizing precision laser distance sensors, IMU and encoder data to automate navigation and operation.

Automated Guided Vehicle (Best Innovative Undergraduate Project)

- Developed Automated guided vehicle consisting of a 4-wheel mecanum drive which can move autonomously in an industrial environment carrying 25 kg of payload.
- Designed printed circuit boards for power and control circuits consisting of ARM STM32F3 as the main controller.
- Developed algorithms for omnidirectional movement and autonomous navigation of AGV.

RFID Attendance Machine

- Developed RFID based attendance system which can be used with RFID cards issued to students.
- Designed and develop intuitive UI for TFT touch screen and database for attendance reporting.
- Developed printed circuit board for main microcontroller and touchpad.

Line Sensor Module

- Developed advanced line sensor module which can adapt to work environment and auto-calibrate itself if required.
- Designed PCB with provision for several communication interfaces for easy integration with any robot.

TECHNICAL PUBLICATIONS

RFID-based attendance machine, IEEE EECCMC, Vellore, India -2018

CERTIFICATIONS

- Converting Equipment Automation Training (CEAT) - Lund, Sweden – 2019
- SIMATIC Step 7 PLC, WinCC Scada programming, SINAMICS Drives, Distributed machine safety - 2019.

EXTRACURRICULAR ACTIVITIES

- Core managing committee member, National level Sports Fest, Zest'17
- Event head Wheelomotion, National level Tech Fest - Mind-Spark'16
- Accounts and Purchase head, Robot Study Circle, 2017-2018.
- Core managing committee member, Electrical Engineering Student Association (EESA), 2016-2018